

# Claims

[c1] What is claimed is:

1. A semiconductor testing apparatus comprising:

a test socket for holding a semiconductor to be tested;

a pickup head for positioning and holding a semiconductor device to be tested in said test socket;

means for applying selected electrical signals to a semiconductor device while said pickup device is holding said device in said test socket; and

a signal shield affixed around said pickup head for automatically attenuating external signals to a level whereby external signals will not interfere with said selected signals being applied to said semiconductor device while said pickup head is holding said device in said test socket.

[c2] 2. The apparatus of claim 1 wherein said signal shield is comprised of an upper ring having a channel in its lower surface; and

a lower ring provided with a raised wall thereon;

said wall being on said lower ring being configured to conform to said channel in said upper ring and intermesh therewith.

[c3] 3. A semiconductor test apparatus comprising:

a test socket for holding a semiconductor device to be tested;

a pickup head for positioning and holding a semiconductor device to be tested in said test socket;

means for applying selected electrical signals to a semiconductor device while said pickup device is holding said device in said test socket;

a first signal shield affixed around said test socket; and

a second signal shield affixed around said pickup head;

said first signal shield and said second signal shield automatically attenuating any non selected signal external to said test apparatus to a level whereby any non selected external signals will not interfere with said selected signals being applied to said semiconductor device while said pickup head is holding said device in said test socket.

- [c4] 4.The apparatus of claim 1 wherein said first signal shield comprises a metal plate surrounding said test socket.
- [c5] 5.The apparatus of claim 1 wherein said signal shield is comprised of an upper ring having a channel in its lower surface; and a lower ring provided with a raised wall thereon; said wall being on said lower ring being configured to conform to said channel in said upper ring and intermesh therewith.
- [c6] 6.The apparatus of claim 1 wherein said second signal shield is comprised of an upper ring having a channel in its lower surface; and a lower ring provided with a raised wall thereon; said wall being on said lower ring being configured to conform to said channel in said upper ring and intermesh therewith.
- [c7] 7.A semiconductor test apparatus comprising;  
a cabinet containing electrical circuitry for applying selected electrical test signals to a semiconductor device;  
a top surface on said cabinet;  
a test socket, coupled to said circuitry, mounted on said top surface of the cabinet;  
a docking plate positioned above said test socket;

a socket adaptor plate nested in and supported by said docking plate;  
an alignment base carrying a floating head block secured to a circuit pickup head designed to insert a semiconductor device into said test socket for testing:

a first signal attenuating shield in the form of a mounting adaptor plate fixedly positioned between the top surface of the tester and the docking plate around the test socket; and

a second signal attenuating shield affixed to the pickup head by said floating head block for automatically enclosing the test socket when the pickup head is holding a device in the test socket and thereby attenuating any extraneous electromagnetic signals to a level at which they will not adversely affect the device in said test socket.

[c8] 8.The apparatus of claim 7 wherein said mounting adaptor plate has a first surface and a second surface and a central opening there through; said first surface contacting the lower surface of the docking plate and the second surface contacting the top surface of the tester.

[c9] 9.The apparatus of claim 8 wherein said mounting adaptor plate is formed of a conductive material and is provided with a first circumferential groove in its first surface around said central opening and a second circumferential groove in its second surface around said central opening.

[c10] 10.The apparatus of claim 9 wherein said first groove is offset from said second groove and each groove is now filled with a respective metallized coated elastomer ring to assure that there is a tight conformal,

attenuating seal between the docking plate and the top surface of the tester.

[c11] 11.The apparatus of claim 7 wherein said second shield is affixed, by the floating head device around said pick up head.

[c12] 12.The apparatus of claim 7 wherein said second shield automatically seals off the test socket from extraneous electromagnetic signals when the pickup head is holding a device to be tested in the recess of test socket.

[c13] 13.The apparatus of claim 7 wherein said second is affixed by a floating head block around the lower portion of the pickup head.

[c14] 14.The apparatus of claim 7 wherein said second shield comprises upper and lower intermeshing rings having respective central openings conforming to the exterior shape of the pickup head the inner surface of central opening of said upper ring section being separated by less than 0.005 inches from the exterior surface of the pickup head.

[c15] 15. The apparatus of claim 14 wherein said upper and lower intermeshing rings are preferably formed of aluminum electroplated with a coating of nickel having a thickness of between 0.0003 inches and 0.001 inches.

[c16] 16.The apparatus of claim 14 wherein said upper ring section has opposing vertical side walls, an upper horizontal face and a lower horizontal face;  
a circumferential channel on said lower face;

a through horizontal hole in said opposing side walls, each horizontal hole being adapted to accept a respective pin;  
said upper face on each of said opposing walls having a through vertical hole that intersect the channel on its lower face and with a pair tapped holes adjacent said vertical channel intersecting hole.

[c17] 17.The apparatus of claim 16 wherein said lower ring section has a raised circumferential wall designed to fit into and intermesh with the channel in said upper ring section;  
notches on the top of opposite sections of said circumferential wall, each notch being in line with the center of a respective one of the vertical through holes in the upper ring section when the circumferential wall is inserted in the channel is said upper ring section  
the top surface of selected sections of said circumferential wall being provided with respective vertical blind holes.

[c18] 18.The apparatus of claim 17 wherein said lower surface of the lower ring section is provided with a circumferential groove 95 having a metallized fabric coated elastomer ring is positioned therein.

[c19] 19.The apparatus of claim 18 opposing sections of said circumferential wall is provided with vertical slots 80 and 81 that pass horizontally through the respective opposing walls and are aligned with the through horizontal holes in opposing walls in said upper ring section when the upper and lower ring sections intermeshed by introducing the circumferential wall into the channel of the upper ring section.

[c20] 20.The apparatus of claim 19 wherein said lower ring section has a

umferential groove in its lower face and said groove has an elastomer ring located therein.